

Claim 1 (twice amended). A hydrogel comprising at least one biomolecule chosen from the group consisting of proteins, enzymes, SOD/catalase enzyme mimics, and recombinant proteins and enzymes, linked via urea groups to PEGs.

Claim 2 (twice amended). The hydrogel according to Claim 1, wherein the PEG has a molecular weight of from 8,000 to 18,000 g/mol.

Claim 3 (twice amended). The hydrogel according to Claim 1, wherein the PEGs are activated by aliphatic or aromatic or araliphatic diisocyanates.

Claim 4 (twice amended). The hydrogel according to Claim 1, wherein the proteins are chosen from the group consisting of antibodies, matrix metalloproteases, enzyme inhibitors, and peptides.

Claim 5 (twice amended). The hydrogel according to Claim 1, wherein free radical scavengers selected from the group consisting of superoxide dismutase, catalase, glutathione peroxidase, myeloperoxidase, SOD/catalase enzyme mimics and combinations thereof are used as proteins.

Claim 6 (twice amended). The hydrogel according to Claim 1, wherein the proteins are enzymes with antimicrobial activity.

Claim 7 (twice amended). The hydrogel according to Claim 1, wherein the proteins are enzymes with phosphorylating activity.

Claim 8 (twice amended). The hydrogel according to Claim 1, wherein the proteins are growth factors.

Claim 9 (twice amended). The hydrogel according to Claim 1, wherein the proteins are enzymes with proteolytic activity.

Claim 10 (twice amended). The hydrogel according to Claim 1, wherein the proteins are proteinogenic protease inhibitors.

Claim 11 (twice amended). The hydrogel according to Claim 1, wherein proteins are employed in mixtures.

Claim 12 (twice amended). A process for producing a hydrogel according to Claim 1, comprising the steps of, in order:

- a) reacting anhydrous PEGs with diisocyanate in a solvent, optionally in the presence of a catalyst,
- b) removing the solvent from the resulting product of activated PEGs by filtration, washing or drying,
- c) reacting the activated PEGs in aqueous solution with proteins, the proteins being present in a buffer which is optionally chosen so that the proteins retain their biological activity,
- d) optionally, carrying out purification steps and washes . . .

Claim 13 (amended). The process for producing a hydrogel according to Claim 12, wherein the hydrogel is dehydrated.

Claim 14 (amended). A wound dressing for deep and extensive chronic wounds, and burns which comprises the hydrogel according to Claim 1.

Claim 15 (amended). Bandages, compresses, plasters, sheets and films comprising the hydrogel of Claim 1.

Claim 16. The hydrogel of Claim 3, wherein said diisocyanate is 1,6 hexamethylene diisocyanate.

Claim 17. The hydrogel of Claim 6, wherein said enzyme is selected from the group consisting of lysozyme and hydrolases.